

Coordination of the Brazilian Statistical System

Invited Paper Session (**IPS 035**) - Setting priorities for a statistics service across government

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Introduction

The Brazilian Statistical System is centralized and the Brazilian Institute of Geography and Statistics (IBGE) plays a very important role as coordinator and producer of several social, demographic, and economic statistics. IBGE is also coordinator and producer of geosciences information on geodesy, cartography, natural resources, and geography.

In order to produce both systems (statistical and geosciences information) IBGE has two technical Directorates (Statistics and Geosciences); two Directorates of Infrastructure (Information Technology and Data Dissemination); a Management Directorate and a School of Statistics with undergraduate and master degrees on statistics.

The main characteristic of the Brazilian Statistical System is the lack of a law to allow IBGE to use more administrative data for statistics purposes. The main administrative data integrated into the national statistical system are produced by the Ministries of Education and Health. Economic data on taxes, balance of payments and banking are produced by the Ministry of Finance and Central Bank and are used by IBGE in the system of national accounts.

All other data have to be produced through economic and social surveys. IBGE has a network of 530 municipal offices to collect data in 5,565 municipalities, and almost 7,000 permanent staff and 4,000 temporary enumerators.

1. Background and History

The National Institute of Statistics was created in 1936. Two years after, in 1938, with the integration of National Institutes of Geography and Statistics, the Brazilian Institute of Geography and Statistics – IBGE – became the official producer of statistical and geographic information.

IBGE is currently governed by law 5,878 of May 11th, 1973 and is subordinated to the Ministry of Planning, Budget and Management.

IBGE started its history with the production of geographic studies on the Brazilian territory and on internal and international migration. The main works on statistics were related to the decennial Population Censuses.

The complexity of our Censuses followed the evolution of the country. At the time of the 1940 Census, Brazil had only 41 million inhabitants and 1,574 municipalities. The fertility rate was 6.2 children per woman and life expectancy was 40.7 years. About 70% of the population lived in rural areas, the

economy depended on agriculture, and the industry was incipient. The infant mortality rate was 150 children per 1000 live births, and the illiteracy rate of the population over 15 years was 50%.

A country with poor social indicators needed to understand the source of these problems to aspire to a better future. And it was not enough to have information every 10 years. Each of these issues meant new demands to IBGE, which got prepared to meet them.

In the 1960's, IBGE created the National Household Sample Survey (PNAD), which is until today the main source of annual social information. During the 1970's, IBGE implemented the Industrial Survey and the Consumer Price Index. In the 1980's, it launched the Monthly Employment Survey and assumed responsibility for the calculation of the country's National Accounts.

With the new Constitution of 1988, IBGE has assumed legal responsibility to calculate, annually, the population of all municipalities, which rose from 1,574 in 1940 to 5,565 today. Municipalities, and State and Federal Government have many actions, budget and constitutional commitments defined in terms of the economic and social indicators and geodetic and cartographic outputs produced by IBGE.

2. Social Statistics: data collection and administrative data records

In order to increase and improve social statistics, IBGE created a forum of public Producers and users of Statistical surveys and administrative records, the Social Statistics Committee.

The Committee on Social Statistics, established by Ministerial Decree in 2007, is a forum for discussion and evaluation of demands in order to structure the Brazilian Social Statistics System.

The standard documentation of databases, according to the documentation of metadata model adopted by IBGE, meets the objectives of the Committee on Social Statistics, being a major element in the construction of diagnosis of the same basis, supporting the definition of demands for social statistics and establishing cooperation among statistical producer institutions.

Thus, a major goal has been to move towards the integrated analysis of the various sources (either surveys or administrative records) of social data in order to facilitate access by government agencies and users to the existing databases and to adopt the Fundamental Principles of Official Statistics of the UN Statistical Commission.

For the next years, Brazilian Statistical System will need to develop a similar institutional coordination and co-operation for economic statistics and population estimates.

3. Economic Statistics: data collection and administrative data records

In Brazil, since the 1970's, when IBGE initiated the production of the first monthly statistics of Brazilian industry, almost all economic statistics have been produced by means of data collection processes

involving companies and their productive establishments.

Up to date, IBGE does not have the legal authorization to access administrative records of companies for statistical purposes. For this reason, IBGE created a number of Economic Surveys.

In the 1970's, 1980's and beginning of the 1990's, the core of the Brazilian economic statistics system was formed by quinquennial Economic Censuses and by Annual and Monthly Surveys of Industry on the physical output of companies belonging to a group updated according to Census results.

All the questionnaires of Economic Surveys were printed in paper and delivered to the companies by IBGE collection agents spread over 530 local branches in the main Brazilian municipalities. Nowadays Brazil has 5,565 municipalities and each one of these branches covers about 10 municipalities.

Considering the reality of those Brazilian economic statistics, we can say that data from the Annual Surveys were used mainly for academic purposes, never having been applied to the calculation of National Accounts of Brazil before.

However, in the 1990's, the need for monitoring the economy of the country due to high inflation and growing international competition demanded from IBGE a deep reform of basic economic statistics, in order to build the new system of quarterly, annual, municipal and regional National Accounts, according to the 1993 System of National Accounts (SNA).

To produce the new Regional Accounts, a decentralized system of statistics was developed and IBGE remains the coordinator and every provincial (state) government is responsible for data compilation in accordance with IBGE's Methodology and SNA. Every year, IBGE and the regional technical teams work together to conciliate the total level of Gross Domestic Product from Regional Accounts with National Accounts.

Today, the Brazilian system of economic statistics is very developed, but it remains dependent on IBGE's data collection structure as the administrative records remain inaccessible. So, the Brazilian system of economic statistics remains centralized!

4. Coordination of a centralized statistical system

The impact of technological changes on society, the organization of several segments of civil society claiming for their rights, the need of geospatial information on small areas for decision making, the increasing use of short term information, and globalization itself are all creating new demands for the development of new statistical methods and more information to be provided by National Statistical Offices.

This context pushes Statistical Offices to act as producers of a large number of relevant information and also as coordinators of a new and different kind of producers of information (national, regional, municipal and small areas; short term, subjective and geospatial, etc.).

In the case of Brazil, IBGE held the Fifth National Conference of Statistics in 2006 in order to discuss the National Statistical System with producers and users of information, such as governmental and non-governmental organizations, research institutes, academia, scientific associations, universities, and private institutions.

Besides the improvement of traditional statistical production, such as population estimates, agricultural census, national and regional accounts, education, health, producer and consumer price index

etc., the Conference discussed new themes, such as time use, wellbeing, disability, victimization, culture, tourism, information and communication technology, food security, and environmental statistics.

Updated information with geographic and thematic details was one of the main challenges facing Brazil.

Another important question discussed during the Conference was the increasing use of statistical information as a parameter for public policies and for distribution of federal funds, which helps to strengthen the statistical system and its risks.

In Brazil, IBGE's annual population estimates for 5,565 municipalities are used to define the distribution of public resources among them. The accuracy of these estimates, however, does not address all of the requirements of the official table of coefficients used for this purpose.

The level of precision of annual official estimates of population of each municipality, however, does not correspond to the expectations of municipal mayors. Some of them allege that the recent demographic dynamics cannot be captured by statistical models that estimate population on the basis of the analysis of the registered demographic trend in the last demographic censuses. Eventual corrections of these estimates can be made, though new Population Censuses are carried only every ten years.

Therefore, possible discrepancies between the official estimates of municipal population and the evaluation made for the municipal managers on this same population may provoke administrative, legal, and political conflicts. This is an example of how important the proper use of official statistics and the need of dialogue among producers and users are.

Increasing dialogue with users: municipal census commissions

To deal with this new institutional requirement, IBGE created, before starting data collection for Agricultural and Population Censuses, a Municipal Census Commission (MCC) in each municipality of the country, aiming at increasing the dialogue with local society and ensuring the quality and transparency of Censuses.

Each MCC is composed of at least five members, among which representatives from IBGE, the executive, legislative and legal powers of the municipality, and the local civil society, who follow census planning, mapping and field work.

These Commissions receive a Census Map of each Brazilian municipality with the boundaries and the geographic characteristics of each census enumeration area. The first MCC activity is assessing the consistency of the information contained in the Census Mapping, when the local participants can provide valuable contributions for improving these maps.

During the Censuses the MCC could follow the operational activities and get to know the evolution of the number of inhabitants through the internet, as IBGE daily released the number of population already surveyed.

Before releasing the final results of municipal population, IBGE presented the results for MCC members to evaluate and make questions. During the 2010 Population Census, each of the 5,565 Municipal Census Commissions had at least three meetings and the difference between preliminary and final data was less than 0,01%.

The Census experience of dialogue between producer and users is being used by IBGE to improve the coordination of each part of the Brazilian centralized statistical system.

5. New Challenge: Integration of the Statistics and Geosciences areas

IBGE's structure, with both the statistics and the geosciences areas, allowed us to optimize resources and to improve quality, coverage and update of 2007 Agriculture Census and 2010 Population Census data. The contribution of each area was an excellent example of an institutional integrating project.

During these Censuses IBGE introduced new technologies and managerial methods. From the 2007 Census on IBGE replaced the traditional questionnaire on paper by a handheld computer, or Personal Digital Assistant (PDA), which is nowadays used in many other surveys. The PDA provides a number of advantages, such as the following:

- Immediate quality control at the moment of data typing, allowing the correction of the information during the interview;
- Filling of all compulsory items, avoiding the lack of answers due to census enumerators' forgetfulness or error;
- Control of data entering by automatically skipping dispensable items, to which there may be no information, which optimizes the census interviewer's and interviewee's time;
- Real-time tracking of the data collection pace in all municipalities, providing better work management, mainly in cases for which the adoption of corrective measures during data collection is necessary.
- Avoid transportation of paper questionnaires and scanning, providing gains in information accuracy and processing agility.
- Facilitate the location of the units to be surveyed, since PDA's are equipped with a GPS (Global Positioning System) receiver, allowing the geocoding of the housing and agriculture units and of the health and education establishments located in the rural areas, as well as tracking of the geographical coverage practically in real time.

In order to optimize the production, analysis and dissemination of statistical information (demographic, economic and social), as well as geodetic, cartographic, geographic and environmental information, IBGE is integrating its Statistical and Geosciences activities.

The 2007 Agricultural Census and the 2010 Population Census gave IBGE the necessary experience to develop this system of geospatial statistics. This new system of information production requires different professionals of statistics, geosciences, and information technology. On the other hand, this new framework will require more coordination across governmental agencies and ministries.

This reality had already been included in the United Nations Statistical Commission agenda. Its 41st (<http://unstats.un.org/unsd/statcom/doc10/2010-13-Brazil-GGIM-E.pdf>) and 42nd Sessions (<http://unstats.un.org/unsd/statcom/doc11/2011-34-GGIM-E.pdf>) brought the attention of the Statistical Commission to this topic.

This new system of national coordination has been adopted by the United Nations initiative on the ECOSOC Resolution on **Global Geospatial Information Management**. This Resolution recognizes that *Geospatial information will be central to good government and in helping address national and global*

priority policy issues, such as e-government, disaster mitigation and management, health, education, economic development, climate change, land use management and environment.

Countries with a centralized statistical system, like Brazil, will need to develop this Geospatial System of Information to produce a larger, diversified and consistent set of relevant geospatial statistics based on statistical principles and good practices (like confidentiality), and to continuously evaluate the relevance of their statistical production.

National and International Conferences on Statistics and Geosciences are good forums to exchange experiences on the improvement of methods of information production and coordination.